scores (and changes) using results of a mixed treatment comparison (first 6 months) and data from long-term extension trials (later treatment periods). Where available, meta-analysis data were used to estimate adverse events incidence, followed by individual trial data and registry estimates. Canadian data from published sources were used to derive healthcare resource utilization costs and EuroQol-5D scores from HAQ-DI scores. All costs were estimated in 2014 Canadian dollars. Probabilistic and one-way sensitivity analyses were completed on analytical horizon, event rates, and efficacy thresholds. **RESULTS:** After running the model for 100,000 simulations of moderate to severe RA patients, the treatment arm including tofacitinib had lifetime costs of $298,434 with 8.17 QALYs. Comparatively, the treatment arm excluding tofacitinib had a lifetime cost of $305,158 with 7.88 QALYs. Therefore, a treatment strategy including tofacitinib is dominant with lower costs and greater effectiveness. One-way and probabilistic sensitivity analysis reflected the robustness of these results. **CONCLUSIONS:** The inclusion of tofacitinib into the treatment strategy for moderate to severe RA is a dominant strategy in Canada (lower cost and increased QALYs).

**PMS47**

**MODELLING THE COSTS AND OUTCOMES ASSOCIATED WITH SEQUENCE OF TREATMENT WITH AND WITHOUT TOFACITINIB FOR THE TREATMENT OF MODERATE TO SEVERE RHEUMATOID ARTHRITIS IN THE US**

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**OBJECTIVES:** Rheumatoid arthritis (RA) is a chronic inflammatory condition with significant economic burden. Tofacitinib is an oral Janus kinase inhibitor indicated in the US for the treatment of moderate to severe RA in patients with inadequate response to methotrexate. Given the similarity of indications across available therapies, economic evaluation of alternate treatment strategies could inform US formulary decisions. We estimated incremental cost-effectiveness ratios of tofacitinib after methotrexate failure in a treatment sequence compared with a similar sequence without tofacitinib from a US third-party payer's perspective. **METHODS:** The model estimated costs and outcomes of RA treatment with a pre-specified "treatment sequence" (sequential methotrexate, tofacitinib, adalimumab, abatacept, tocilizumab, rituximab) versus a "comparator sequence" (sequential methotrexate, etanercept, adalimumab, abatacept, tocilizumab, rituximab). Alternative sequences were considered. Efficacy was assessed by Health Assessment Questionnaire (HAQ) and compared using mixed treatment comparison and data from long-term extension trials. Adverse event data were from published meta-analyses and trials of tofacitinib and comparators. Patient characteristics were based on tofacitinib clinical trials (NCT00856544; NCT00847613; NCT00853385). RA-related costs were from published data mapping HAQ onto healthcare resource utilization in US patients with RA. Indirect costs were not considered. **RESULTS:** From a US third-party payer's perspective, the predicted lifetime cost of "treatment sequence" including tofacitinib was $509,047 versus $546,860 for "comparator sequence" without tofacitinib, with the difference primarily driven by drug cost. The "treatment sequence" with tofacitinib resulted in an additional 0.11 quality-adjusted life years versus "comparator sequence." Probabilistic sensitivity analysis suggested the probability that tofacitinib is cost-effective as second-line therapy is 64.0% at a threshold of $100,000. **CONCLUSIONS:** Our model suggests that including tofacitinib as second-line therapy following methotrexate failure is a cost-effective alternative versus a "comparator sequence" without tofacitinib. Sensitivity analysis reiterated robustness of the findings and cost-effectiveness of including tofacitinib. Results of alternate treatment sequence comparisons were similar.

**PMS48**

**COST-EFFECTIVENESS OF TOCILIZUMAB FOR THE MANAGEMENT OF INADEQUATELY RESPONDING RHEUMATOID ARTHRITIS PATIENTS**

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**OBJECTIVES:** Rheumatoid arthritis (RA) is a chronic inflammatory disorder of the musculoskeletal system. After inadequate response (IR) to anti-tumor necrosis factor (anti-TNF) treatments, the clinical and economic value of alternative biologic agents is unclear. We sought to estimate the cost-effectiveness of tocilizumab versus abatacept from a U.S. payer perspective. **METHODS:** We constructed a treatment-regimen based cohort model with a lifetime horizon. The model evaluated the treatment comparison of tocilizumab (162mg every other week with escalation to weekly for inadequate responders) vs. abatacept (125mg, weekly). In this comparison, treatment initiation was followed by a certolizumab-tofacitinib-rituximab-palliative care sequence. Treatment response rates were applied every 6 months. Health related quality of life was mapped to the health assessment questionnaire (HAQ) for RA. Mortality was modelled allowing for both non-RA and RA-specific mortality predicted by the HAQ. Costs were derived from published sources and included drug treatment, monitoring, and direct medical resource utilization. Costs and QALYs were discounted at 3%. Sensitivity analyses were performed to test the robustness of the model results. **RESULTS:** Comparing the two initial treatments, tocilizumab dominated abatacept yielding better outcomes and fewer costs. Probabilistic sensitivity analyses indicated substantial uncertainty, yet the mean estimates remained consistent with the deterministic results. Tociluzumab had an 89% probability of being cost-effective at $50,000/QALY. The one-way sensitivity analysis indicated that the parameters related to baseline HAQ and improvement in the ACR 50 and 70 rates had the most impact on model results. **CONCLUSIONS:** Management of TNF-IR patients with RA represents a challenge for the health care system. Compared to abatacept, tocilizumab appears to represent a lower cost treatment option with improved outcomes. However, with the attendant uncertainty, head-to-head trials of these agents may be warranted.

**PMS49**

**COST-EFFECTIVENESS ANALYSIS OF CONDOLIASE IN PATIENTS WITH LUMBAR DISC HERNIATION IN JAPAN**

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**OBJECTIVES:** Condoliase, an enzyme that specifically degrades glycosaminoglycans, main constituents of the nucleus pulposus, and reduces the compressions on nerves, can serve as a less-invasive curative treatment for patients with lumbar disc herniation and is expected to reduce associated medical cost due to shortened hospital stays. This study aims to evaluate the cost-effectiveness of the treatment with condoliase compared with conventional surgical therapy in the Japanese healthcare system. **METHODS:** A Markov model was developed to estimate quality-adjusted life year (QALY) and associated costs over 1 year. QOL scores were converted from corresponding Oswestry Disability Index (ODI). ODI of condoliase group came from the results of a phase 3, multicenter, double-blind, randomized placebo-controlled study conducted in Japan. ODI of surgery group was estimated from the values obtained from published literatures. The risk of re-operation after treatment was considered during calculation. Surgical treatment costs and re-operation costs were collected and estimated using a Japanese administrative claims database (Japan Medical Data Center, JMDC). Payer perspective was adopted, and discounting was not applied due to the short timeframe of the analysis. One-way sensitivity analysis was performed to assess the impact of parameter uncertainty on the model's conclusion. **RESULTS:** Average cost and effectiveness gained per patient for condoliase group and surgery group were 385,344 JPY vs. 798,919 JPY, 0.694 QALY vs. 0.685 QALY, respectively, meaning condoliase group was dominant compared to surgery group. One-way sensitivity analysis showed the robustness of this result. **CONCLUSIONS:** From the payer perspective, treatment with condoliase for patients with lumbar disc herniation in Japan is expected to reduce medical costs compared to conventional surgery treatment even taking into account the uncertainties.

**PMS50**

**ECONOMIC EVALUATION OF TOFACITINIB AS INITIAL MEDICATION IN ADULTS WITH RHEUMATOID ARTHRITIS AFTER FAILURE TO METHOTREXATE IN CHILE**

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**OBJECTIVES:** Rheumatoid Arthritis (RA) destroys synovial joints and generates pain. Its prevalence in Chile has been estimated to be 0.46% (IC 95% 0.24-0.8). Available drugs for treatment include conventional synthetic Disease-Modifying Antirheumatic Drugs (csDMARDs), biological therapies and a new drug approved for treatment after failure of csDMARDs: tofacitinib. The aim of this study is to compare the costs-effectiveness of tofacitinib relative to biological therapies as an initial treatment in adults with RA after failure of methotrexate in Chile. **METHODS:** A simulation model of individual patients compared two treatment sequences for RA: tofacitinib vs biological therapy as initial medications; always assuming a combination therapy with methotrexate; biological therapies validated with rheumatologists and included in the model were etanercept, infliximab, tocilizumab, adalimumab, rituximab and salvage therapy (defined by experts). The characteristics of the patient included: age, weight, initial HAQ score, and clinical response to short and long term treatment. HAQ scores were used to calculate utilities, measured in QALYs based on literature information. All costs were obtained from public tenders and official reports from Chilean Ministry of Health. The analysis was made from third payer perspective with one, five, ten years and lifetime horizon. Annual discount rate was 3% for costs and outcomes. Results are expressed in USD2014 (US$1 = CLP$600) **RESULTS:** Total costs, for year one of treatment was US$9,627 starting the sequence with tofacitinib and US$11,638 starting with etanercept; obtained HAQ-QALYs were 0.76 and 0.68, respectively. The total cost of the sequence strategy for lifetime horizon initiating with tofacitinib, was US$236,373 compared to the treatment with biological therapy: US$259,403 with a difference of 0.62HAQ-QALY for utility. The costs included the drug, administration and health care. **CONCLUSIONS:** The sequence of treatment initiating with tofacitinib for RA Arthritis is a dominant strategy compared to biological therapies used in Chile. Net savings with this drug is US$35,006

**PMS51**

**WHAT IS THE COST-EFFECTIVE BEARING SURFACE CHOICE IN PRIMARY TOTAL HIP ARTHROPLASTY**

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**OBJECTIVES:** Primary Total Hip Arthroplasty(THA) provides quality of life to patients and is cost-effective. Improvements to implant life have focused on the bearing surface with ceramic-on-polyethylene (CoP) bearing use growing rapidly due to evidence of longer implant life. We sought to determine if the increased CoP cost over the metal-on-polyethylene (MoP) provides enough benefit through lower revision rate to justify its utilization. **METHODS:** A Markov decision model was designed to determine the reduction in CoP 20-year revision rate required to make this implant cost-effective compared to MoP. Premier's 2012 Research Database provided hospitalization costs for primary and revision surgeries. The Orthopedic Research Network (ORN) provided aggregated implant purchase price information. The HealthEast Joint Registry was the source of the MoP revision rate used for comparison. At each 10-year age increment/bearing cost condition, the CoP revision rate was varied until the lifetime costs were equal for the 2 different bearings. **RESULTS:** The sample included 20,398 patients aged 45-89+ from 475 US hospitals with identified bearing surfaces. CoP vs. MoP surface cost differences were $325+/-$177(p=0.014) and $1,003+/-$710(p=0.003), respectively, based on unadjusted and adjusted analysis of Premier data. ORN reports indicated a $600 difference in 2012. Revision costs were $23,628+/-$385 on 8,566 patients. HealthEast's data indicates a 20-year MoP revision rate of 14.5/100THAs. An inflection in the revision